

TBD06 – IB Review #3

Name.....

1. (a) Compare the structural properties of starch and cellulose.

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(4)

- (b) Explain why humans cannot digest cellulose.

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(1)

(Total 5 marks)

2. (a) State what is meant by *dietary fibre*.

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(2)

- (b) Give **two** examples of dietary fibre.

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(2)

- (c) Describe **two** reasons for the inclusion of dietary fibre in a healthy diet.

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(2)

(Total 6 marks)

3. (a) For each of the following vitamins describe its function in a diet and **one** effect of its deficiency.
Vitamin C

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Vitamin D

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(4)

- (b) Discuss **two** solutions for the prevention of nutrient deficiencies.

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(2)

(Total 6 marks)

4. The structure of sucrose is shown in Table 22 of the Data Booklet.

- (a) State the name of the oxygen-containing link between the two rings in the structure.

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(1)

- (b) Deduce the ring structures of the two monosaccharides that condense to form a molecule of sucrose.

(2)

- (c) State the empirical formula of a monosaccharide.

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(1) (Total 4 marks)

5. The structures of some hormones are shown in Table 22 of the Data Booklet.

- (a) Identify **one** hormone with a steroid backbone, state where it is produced and outline its specific role in the body.

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(2)

- (b) Identify **one** hormone with a non-steroid backbone, state where it is produced and outline its specific role in the body.

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(2) (Total 4 marks)

6. Fats and oils are formed when fatty acids react with glycerol.

- (a) Outline **two** structural differences between saturated and unsaturated fats.

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(2)

- (b) Explain why saturated fats have higher melting points than unsaturated fats with similar relative molecular masses.

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(2) (Total 4 marks)

7. The structures of the amino acids glycine and serine are shown in Table 20 of the Data Booklet.

- (i) Draw the structure of one of the dipeptides formed when one molecule of glycine and one molecule of serine react together. Show all the bonds in the link between the two molecules.

(2)

- (ii) State the type of reaction occurring and identify the other product of the reaction.

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(1)

(Total 3 marks)

8. State the general role of hormones in the body and identify the gland that controls their production.

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(Total 2 marks)

9. The structure of a protein can be analyzed using paper chromatography.

- (i) Describe the process that the protein must undergo before chromatography is used and explain why it is necessary.

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(2)

- (ii) Explain how paper chromatography is used to identify the individual amino acids.

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(4) (Total 6 marks)